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EXAMINER	
LEE, ANDREW CHUNG CHEUNG	
ART UNIT	**PAPER NUMBER**
2419	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/964,702	DESANTI ET AL.	
	Examiner	Art Unit	
	Andrew C. Lee	2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Claims 1 – 34 are pending.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 14, 21, 30, 32, 2, 20, 25, 31, 3, 4, 15, 22, 27, 6, 11, 12, 13, 17, 23, 24, 26, 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Yuasa et at. (6085238).

Regarding Claims 1, 14, 21, 30, 32, Yuasa et at. disclose a method, an intermediate network device, computer readable medium for use by an intermediate network device having a plurality of interfaces for forwarding network packets among the interfaces, one or more of the interfaces being associated with one or more Virtual Local Area Network (VLAN) designations *(Fig. 1, col. 17, lines 32 – 41, lines 57 – 67, col. 18, lines 1 – 6),* the method comprising the steps of: mapping each VLAN designation to a site identifier *("matches the virtual group ID of the local site", and "a site identification code" interpreted as mapping each VLAN designation to a site identifier; Fig. 19, col. 37, lines 38 – 59, col. 39, lines 55 – 60);* receiving on an inbound interface a packet having a

site-local unicast destination address *("the MAC address can be handled as virtual group IP containing the case where the destination virtual group ID of the transmission packet"; Fig. 20, col. 38, lines 1 – 14);* identifying the VLAN designation associated with the received packet *(Fig. 20, col. 38, lines 26 – 44);* utilizing the identified VLAN designation to retrieve the site identifier to which the VLAN designation is mapped *("determine that the packet is an intranet frame, and unicasts the packet to the port of a member of the virtual group to which the destination client address belongs"; col. 38, lines 45 – 60);* creating a modified destination address by embedding the retrieved site identifier into the site-local unicast destination address *("the site and the VLAN-ID of the packet are encapsulated in the packet" interpreted as creating a modified destination address by embedding the retrieved site identifier into the site-local unicast destination address; col. 39, lines 61 – 67, col. 40, lines 1 – 7)*; and rendering a forwarding decision for the received packet based on the modified destination address *("when the internet protocol subnet ID does not match the local subnet ID, the packet is forwarded …." Interpreted as rendering a forwarding decision; col. 39, lines 61 – 67, col. 40, lines 1 – 7).*

Regarding Claims 2, 20, 25, 31, Yuasa et al. disclose wherein the received packet complies in at least substantial part with version 6 of the Internet Protocol (IPv6) *("IPv6 of layer 3" interpreted as the received packet complies in at least substantial part with version 6 of the Internet Protocol (IPv6); col. 25, lines 52 – 62).*

Regarding Claim 3, Yuasa et al. disclose wherein the step of rendering a forwarding decision comprises the step of deciding upon an outbound interface from which the packet is to be forwarded *("forwarded from the local router switch …." interpreted as*

deciding upon an outbound interface from which the packet is to be forwarded; col. 39, lines 61 – 67, col. 40, lines 1 – 7).

Regarding claims 4, 15, 22, 27, Yuasa et at. disclose the packet further includes a site-local unicast source address *("matches the virtual group ID of the local site" interpreted as the packet further includes a site-local unicast source address; Fig. 19, col. 37, lines 38 – 59),* the method, and device further comprising the steps of: identifying the VLAN designation associated with the outbound interface from which the packet is to be forwarded *(col. 19, lines 7 – 12)* or the VLAN designation with which the packet is to be tagged; utilizing the identified VLAN designation for the outbound interface to retrieve the site identifier to which the VLAN designation is mapped *(col. 19, lines 9 – 12)*; and comparing the site identifier associated with the inbound interface with the site identifier associated with the outbound interface (*col. 18, lines 61 – 67, col. 19, lines 1 – 6).*

Regarding Claim 6, Yuasa et al. discloses wherein the step of rendering comprises the step of applying the modified destination address to a forwarding information base (FIB) optimized to permit fast lookups *(Fig. 19, col. 37, lines 38 – 54).*

Regarding Claim 11, Yuasa et at. disclose whereby each VLAN designation is mapped to a single site identifier *("only one VLAN group can be defined for each MAC address of a network interface card" interpreted as each VLAN designation is mapped to a single site identifier; Fig. 4, col. 37, lines 53 – 65).*

Regarding Claim 12, Yuasa et at. disclose whereby a plurality of VLAN designations are mapped to the same site identifier *("matches the virtual group ID of the local site", and*

"a site identification code" interpreted as a plurality of VLAN designations are mapped to the same site identifier; Fig. 19, col. 37, lines 38 – 59, col. 39, lines 55 – 60).

Regarding Claim 13, Yuasa et al. disclose wherein packets may be one of either untagged or tagged with a VLAN designation, and the step of identifying includes either, if the received packet is untagged, determining the VLAN designation of the inbound interface on which the untagged packet was received or, if the received packet is tagged, determining the VLAN designation with which the received packet is tagged *(col. 22, lines 34 – 54)*

Regarding Claim 17, Yuasa et al. disclose an intermediate network device (*Fig 1, elements s LAN switch)* for forwarding packets within a computer network, the device comprising: a plurality of interfaces for receiving and forwarding packets, one or more of the interfaces associated with one or more virtual local area network (VLAN) designations *(Fig. 1, elements 41, …46, input ports; col. 17, lines 32 – 41);* a forwarding information base (FIB) for storing routing information *(Fig. 1, element 9, virtual group distribution management section; col. 17, lines 34 – 50);* a routing engine in communicating relationship with the FIB, the routing engine configured to make forwarding decisions for received packets, based at least in part on the routing information in the FIB *(Fig. 1, element 8, virtual group routing table; col. 17, lines 58 – 65);* and a memory in communicating relationship with the routing engine, the memory configured to store the VLAN designations associated with the device's interfaces in mapping relationship with one or more site identifiers *(Fig. 1, elements 12, 12a, virtual group queueing section; col. 18, lines 57 – 67*), wherein the routing engine utilizes the

memory to ensure that a packet having a site-local unicast source and/or destination address is only forwarded between interfaces corresponding to the same site identifier *(col. 20, lines 13 – 54).*

Regarding Claim 23, Yuasa et at. disclose wherein the plurality of interfaces are located at one or more line cards disposed at the intermediate network device (*Fig. 1, elements 41, … input ports, and elements 71,... output ports; col. 17, lines 32 - 41, 55 - 57), and each line card includes a corresponding FIB and routing engine for rending for-warding decisions (Fig. 1, Fig. 1, element 9, virtual group distribution management section; col. 17, lines 34 – 50; element 8, virtual group routing table; col. 17, lines 58 – 65).*

Regarding Claim 24, Yuasa et at. disclose a method for use by an intermediate network device *(Fig. 1, element S, LAN switch)* having a plurality of interfaces for forwarding network packets among the interfaces *(Fig. 1, Fig. 1, elements 41, … input ports, and elements 71,... output ports; col. 17, lines 32 - 41, 55 – 57),* one or more of the interfaces being associated with one or more Virtual Local Area Network (VLAN) designations *(Fig. 1 col. 17, lines 32 - 41)*, the method comprising the steps of: receiving on an inbound interface a packet having a link-local unicast destination address *("matches the virtual group ID of the local site", and "a site identification code" and "link ID for each link" interpreted as receiving on an inbound interface a packet having a link-local unicast destination address; Fig. 19, col. 37, lines 38 – 59, col. 39, lines 55 – 60; Figs. 17, col. 33, lines 12 – 26);* identifying the VLAN designation associated with the received packet *(Fig. 20, col. 38, lines 26 – 44)*; creating a modified destination address

by embedding the identified VLAN designation into the link-local unicast destination address *("the site and the VLAN-ID of the packet are encapsulated in the packet" interpreted as creating a modified destination address by embedding the identified VLAN designation into the link-local unicast destination address; col. 39, lines 61 – 67, col. 40, lines 1 – 7, col. 32, lines 45 – 64);* and rendering a forwarding decision for the received packet based on the modified destination address *(when the internet protocol subnet ID doe not match the local subnet ID, the packet is forwarded …." Interpreted as rendering a forwarding decision; col. 39, lines 61 – 67, col. 40, lines 1 – 7).*

Regarding Claim 26, Yuasa et al. disclose wherein the step of rendering a forwarding decision comprises the step of deciding upon an outbound interface from which the packet is to be forwarded *(col. 19, lines 7 – 12).*

Regarding Claim 29, Yuasa et at. disclose wherein packets may be one of either untagged or tagged with a VLAN designation, and the step of identifying includes either, if the received packet is untagged, determining the VLAN designation of the inbound interface on which the untagged packet was received or, if the received packet is tagged, determining the VLAN designation with which the received packet is tagged *(col. 22, lines 34 – 54).*

4. Claims 7, 8, 9, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuasa et at. (6085238) in view of Chang (U.S. 6,728,249).

Regarding Claim 7, Yuasa et al. disclose all the limitations of claim 6 except wherein the FIB includes one or more content addressable memories (CAMs) and/or

ternary content addressable memories (TCAMs). Chang in the same field of endeavor discloses wherein a network processor stores LEC (LAN emulation client) up-link information which facilitates mapping of MAC addresses to VCC (Virtual Channel Connection) information. This information is stored in a content addressable memory (CAM) *(Fig. 2, element 58)* coupled to a packet forwarding subsystem *(Fig. 2, element 56 is equivalent to the FIB*) within the network processor *(col. 3, line 65 to col 4, line 3).* At the time the invention was made it would have been obvious to a person of ordinary skill in the art to use CAM to store routing information as taught by Chang in the system of Yuasa et at. to facilitates the cut-through forwarding process *(col. 6, lines 58 – 60).*

Regarding Claim 8, Yuasa et al. and Chang disclose all the limitations of claim 7. Furthermore, Chang in the same field of endeavor discloses wherein the one or more CAMs and/or TCAMs stores addresses or address prefixes that have been modified to include site identifiers embedded therein *(col. 6, lines 61-63 ; col. 8, lines 10 – 32. The CAM stores LEC uplink information which provides mapping of MAC destination addresses to virtual channel connections (VCCs) and vice versa. The MAC destination addresses and VCC are associated with addresses stored in the CAM. Unique MAC and VLAN ID are pre-registered into CAM during configuration. The VLAN ID (equivalent to site identifier)* which is in the (embedded) packet header is use to determine LEC ID for the packet and with the VCC from the CAM is used for packet forwarding. See col 3, line 43 – 55).

Regarding Claim 9, Yuasa et at. and Chang disclose all the limitations of claim 8. Furthermore, Chang discloses wherein at least one of the CAMs and/or TCAMs has a

plurality of rows and each row of the CAM and/or TCAM stores a respective address or address prefix *(col 6, lines 61-65. The CAM is a lookup table and it would have been obvious to a person of ordinary skill in the art to associate a lookup table with plurality of rows, each row storing MAC destination addresses, VCC and VLAN ID to facilitate the lookup process).*

Regarding Claim 18, Yuasa et al. discloses all the limitations of claim 17 except wherein the FIB includes one or more content addressable memories (CAMs) and/or ternary content addressable memories (TCAMs) programmed with a plurality of addresses or address prefixes. Chang in the same field of endeavor teaches wherein a network processor stores LEC (LAN emulation client) up-link information which facilitates mapping of MAC addresses to VCCs (Virtual Channel Connections) information. This information is stored in a content addressable memory (CAM) *(Fig. 2, element 58)* coupled to a packet forwarding subsystem *(Fig. 2, element 56 is equivalent to the FIB)* within the network processor *(col 3, line 65 to col 4, line 3; col 6, lines 58 - 65)*. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to use CAM to store routing information as taught by Chang in the system of Yuasa et al. to facilitates the cut-through forwarding process *(col 6, lines 58 – 60).*

5. Claim 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuasa et al. (6085238) in view of Chang (US 6728249) and further in view of Muller et al. (US 5938736).

Regarding Claim 19, Yuasa et al. and Chang disclose all the limitations of or greater than 128 bits. Muller et al. in the same field of endeavor discloses at feast one CAM *(Fig. 6 elements 610 and 620)* and/or TCAM has a width that is equal to or greater than 128 bits *(col. 11, lines 51 — 53)*. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to include this feature as taught by Muller et at. in the system of Chang to be able to perform search key formation associated with the CAM with an IP version six (IP V6) class indicating the packet header is associated with an IP V6 packet *(col 7, lines 6 -- 32).*

6. Claims 33, 34, 5, 10, 16, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuasa et at. (6085238) in view of Ichikawa et al. (U.S. 6307837 B1).

Regarding Claim 33, 5, 10, 16, 28, Yuasa et al. disclose an apparatus *(Fig. 1)* comprising: a plurality of interfaces configured to receive and forward packets, one or more of the interfaces associated with one or more virtual local area network (VLAN) designations (Fig. 1, elements 41, …46, input ports; col. 17, lines 32 – 41); a forwarding information base (FIB) configured to store routing information *(Fig. 1, element 9, virtual group distribution management section; col. 17, lines 34 – 50);* a routing engine in communicating relationship with the FIB, the routing engine configured to make forwarding decisions for received packets, based at least in part on the routing information in the FIB *(Fig. 1, element 8, virtual group routing table; col. 17, lines 58 – 65);* and a memory in communicating relationship with the routing engine, the memory

configured to store the VLAN designations associated with the device's interfaces in mapping relationship with one or more site identifiers *(Fig. 1, elements 12, 12a, virtual group queueing section; col. 18, lines 57 – 67),* wherein the routing engine is further configured to, in response to receipt of a packet on an inbound interface having a site-local unicast destination address *("the MAC address can be handled as virtual group IP containing the case where the destination virtual group ID of the transmission packet"; Fig. 20, col. 38, lines 1 – 14),* identify a VLAN designation associated with an outbound interface from which the packet is to be forwarded *(Fig. 20, col. 38, lines 26 – 44)*, utilize the identified VLAN designation for the outbound interface to retrieve a site identifier to which the VLAN designation is mapped *("determine that the packet is an intranet frame, and unicasts the packet to the port of a member of the virtual group to which the destination client address belongs"; col. 38, lines 45 – 60),* compare a site identifier associated with an inbound interface with the site identifier associated with the outbound interface *(col. 18, lines 61 – 67, col. 19, lines 1 – 12).*

Yuasa et al. do not disclose if the two site identifiers match, forward the packet on the outbound interface, and if the two site identifiers do not match, drop the packet without forwarding.

Ichikawa et al. in the same field of endeavor teach if the two site identifiers match, forward the packet on the outbound interface *(col. 9, lines 12 – 24),* and if the two site identifiers do not match, drop the packet without forwarding *(col. 9, lines 26 – 29).*

At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Yuasa et al. to include the features of if the two site identifiers match, forward the packet on the outbound interface, and if the two site identifiers do not match, drop the packet without forwarding as taught by Ichikawa et al. One of ordinary skill in the art would be motivated to do so for providing a solve a problem of fraudulent access to a user LAN through a falsified source address by providing a packet transfer method and associated base stations that allow only those terminals which are registered beforehand to access certain data networks *(as suggested by Ichikawa et al., see col. 3, lines 12 – 17).*

Regarding Claim 34, Yuasa et al. disclose wherein the received packet complies in at least substantial part with version 6 of the Internet Protocol (IPv6) *(IPv6 of layer 3" interpreted as the received packet complies in at least substantial part with version 6 of the Internet Protocol (IPv6); col. 25, lines 52 – 62).*

Response to Arguments

7. Applicant's arguments filed on 10/06/2008 with respect to claims 1 – 34 have been fully considered but they are not persuasive.

Regarding claim 1, applicant argues reference Yuasa does not suggest the claimed subject matters "mapping each VLAN designation to a site identifier, creating a modified destination address by embedding the retrieved site identifier into the site-local unicast destination address; and rendering a forwarding decision for the received packet based on the modified destination address.

Examiner respectfully disagrees.

Examiner contends reference Yuasa teaches “mapping each VLAN designation to a site identifier, creating a modified destination address by embedding the retrieved site identifier into the site-local unicast destination address; and rendering a forwarding decision for the received packet based on the modified destination address.

Examiner interpreted “mapping each VLAN designation to a site identifier” as virtual group registration/routing table section …in which client addresses and virtual group ID (VLAN-IDs) of virtual groups (VLANs) are entered…..matches the virtual group ID of the local site,...a site identification code to identify local or internet is placed in a predetermined location of a packet...,see Yuasa, col. 37, lines 38 ” 59“ col. 39, lines 55 – 60, and Fig. 19., Examiner interpreted “creating a modified destination address by embedding the retrieved site identifier into the site-local unicast destination address” is as the site and VLAN-ID of the packet are encapsulated in the packet to the internet …., see col. 39, lines 61 – 67, col. 40, lines 1 – 7; and “rendering a forwarding decision for the received packet based on the modified destination address” as when the internet protocol subnet ID does not match the local subnet ID, the packet is forwarded from the local router switch to the main router…,see reference Yuasa: col. 39, lines 61 – 67, col. 40, lines 1 – 7.

Regarding claims 33 and 34, applicant then argues references Yuasa and Ichikawa do not teach the claimed subject matters "to store the VLAN designations associated with the device's interfaces in mapping relationship with one or more site

identifiers,.. and utilize the identified VLAN designation for the outbound interface to retrieve a site identifier to which the VLAN designation is mapped.

Examiner respectfully disagrees.

Examiner contends the combined system of references Yuasa and Ichikawa teach "to store the VLAN designations associated with the device's interfaces in mapping relationship with one or more site identifiers,.. and utilize the identified VLAN designation for the outbound interface to retrieve a site identifier to which the VLAN designation is mapped.

Examiner interpreted "to store the VLAN designations associated with the device's interfaces in mapping relationship with one or more site identifiers" as collates a pair of the client addresses of the packet destination and source with the virtual group registration table and identifier the corresponding virtual group…. See Yuasa: Fig.1, elements 12, 12a, col. 18, lines 57 - 67, and interpreted "utilize the identified VLAN designation for the outbound interface to retrieve a site identifier to which the VLAN designation is mapped" as finds a match between the destination virtual group ID and the local site virtual group, it determine that the packet is an intranet frame, and unicasts the packet to the port of a member of the virtual group….see Yuasa: col. 38, lines 45 - 60.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Yusa et al. (6085238).

b) Crayford (US 6269098 B1).

c) Matsuhira (US 20030088697 A1).

d) Liu et al. (US 6947419 B2).

e) Dobbins et al. (US 6711171 B1).

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Lee whose telephone number is (571)272-3131. The examiner can normally be reached on Monday through Friday from 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on (571) 272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew C Lee/
Examiner, Art Unit 2419
<1/20/2009:2Qy09>

/Chirag G Shah/

Supervisory Patent Examiner, Art Unit 2419